

CHAPTER 11

WHY ECONOMIC GROWTH IS CONSIDERED A GOOD THING

11.1 Mainstream policy calls for continuing growth

There is little doubt among mainstream economists about the desirability of continued economic growth. Indeed, mainstream literature tends to convey the impression that commitment to growth is a defining mark of economic orthodoxy.¹ To call the desirability of growth into question is commonly viewed as defection from the profession.

This puts mainstream economics at loggerheads with our earlier conclusion (Chapter 7) that ecological damage tends to increase with increasing economic production. The conflict is intensified by the findings that our environmental crisis can be resolved neither by technological remedies for particular problems (Chapter 8) nor by substitution of clean for fossil energy (Chapter 9). Unpalatable as the remaining alternative may be, it appears that the only way out of the crisis involves cutting back on our consumption of energy. And this in turn involves cutting back on our economic production (Chapter 7).

On one hand, our argument to this point indicates that return to ecological health requires a substantial curtailment of economic growth. On the other, economic orthodoxy maintains that continuing growth is essential to economic health. Which counsel should prevail?

Out of fairness, it should be noted that this commitment to growth is not without supporting arguments. Although these arguments are usually formulated in ways suggesting that their outcome is predetermined, numerous reasons can be found in relevant literature purporting to show why continuing economic growth is desirable. Economic growth increases tax revenues, stimulates employment, generates additional

goods and services, advances standards of living, and so forth. The general thrust of these arguments is that economic growth leads to results that are socially beneficial. Not only is it good for the economy at large, growth also contributes to social well-being.

The cumulative argument of Chapters 7 through 9 above indicates that world-wide economic production must be curtailed for the survival of present-day society. Mainstream defenders counter with various arguments suggesting that continued growth is necessary for continued social well-being. The purpose of the present chapter is to consider a few of the more prominent among these arguments and to show that they fail their intended purpose.

While not denying that economic growth often leads to beneficial results, our general conclusion will be that its benefits fall short of those claimed by its mainstream advocates. On balance, as we shall see, the social benefits of continued growth fail to outweigh its mounting costs in environmental degradation.

11.2 An argument tying growth to a growing population

According to much-published statistics (e.g., *New York Times*, August 20, 2002), world population quadrupled in the 20th century. During the year 2000, it reached six billion. Roughly two billion more people are expected before 2030 (U.S. Census Bureau). It seems obvious that increasing amounts of goods and services will be needed worldwide to sustain all these additional people. This provides an initially plausible argument for the desirability of continued economic growth. Economic growth, the argument claims, will always be needed to take care of the world's growing population.

Before we respond to this argument, it should be acknowledged that growth in world population has far-reaching economic ramifications. Some of these will be considered later in this chapter. But the prospect of continuing population growth does not automatically convert into a rationale for continued economic expansion. One factor

that needs to be taken into account is that population is increasing more rapidly in developing countries than in countries with established industrial sectors. For example, during recent years the populations of Angola and Ethiopia have been increasing at rates of about 2.2 and 2.7 percent, respectively, compared with increase in the U.S. and the U.K. of less than one percent (*CIA World Factbook*, 2001). Such figures can be read as indicating that continued economic growth is called for in developing countries. With regard to continued growth in other countries with relatively stable populations, however, the fact that population is increasing in developing countries seems to have no direct implication.

Another relevant consideration is the large disparity in economic production between richer and poorer nations. In the year 2000, for example, the U.S. GDP per capita was 36 times greater than that of Angola, and that of the U.K. 28 times greater than that of Ethiopia (*CIA World Factbook*, 2001). Someone concerned with inequities of this sort could plausibly argue that population growth calls for a more equitable distribution of wealth rather than continued expansion of the overall world economy.

While keeping population growth and its ramifications in view, let us shift attention from economic wealth to the energy required to produce that wealth. In chapter 6, we estimated that during the hunter-gatherer era, around 10,000 B.C., a typical human consumed approximately one billion joules of energy per year. By 5,000 B.C., annual consumption per person had increased to about six billion joules, and by 1,000 B.C. to about 16 billion. Average per capita consumption had increased to about 38 billion joules by 1750 A.D. (marking the beginning of the Industrial Revolution), and had spurted ahead to 56 billion joules by 1900. By 2000, average annual energy consumption per person stood at about 79 billion joules. As already noted, world population in 2000 had reached 6 billion persons, with another 2 billion predicted by 2030. Let us consider

these figures from various angles with the contention in view that continuing economic growth is required to accommodate a growing population.

Suppose first that per capita energy consumption holds constant at somewhere near the 2000 level while population grows to eight billion, as projected for 2030. Eight billion people each consuming 79 billion joules of energy would result in a worldwide consumption of 632×10^{18} joules, a 33% increase over the 2000 level of 474×10^{18} . Given that the biosphere already is in serious trouble with the entropy stemming from human energy consumption at the present level, increasing that consumption by 1/3rd would only hasten the impending ecological catastrophe. If per capita consumption were actually to increase during this period, as some observers envisage, the likelihood of disastrous results would be even higher.

Another abstract possibility is that *total* (not per capita) world energy consumption holds constant at the 2000 level (474×10^{18} joules) while world population increases to 8 billion as predicted. This would provide an average of about 59 billion joules per person, more than our estimate of 56 billion for the year 1900. The early 1900s comprised an era in which sizeable portions of the human race (certainly not all) appeared to live fairly comfortably. Given subsequent improvements in productive techniques, along with more equitable access to natural resources, per capita energy consumption above the 1900 level might leave most of the 8 billion people alive in 2030 reasonably well off. This option seems clearly more desirable than that of the previous paragraph.

The brute reality of the matter, however, is that the total amount of energy consumed by the human race in the year 2000 was already far too high. Suppose that by 2030 total world consumption were reduced to the level estimated for 1900, a time before massive side-effects like global warming and ozone depletion became evident. In 1900, world population stood at about 1.6 billion people, consuming an average of 56 billion

joules per person. This amounts to a worldwide consumption of roughly 90×10^{18} joules per year. If that amount were distributed among the 8 billion people predicted for 2030, it would provide each about 11 billion joules of energy, which is only slightly less than the amount per capita at the beginning of the Roman civilization (section 6.4).

Suppose even that world consumption by 2030 were cut back to the level at the beginning of the Industrial Revolution, before humanity began producing more entropy than the biosphere could absorb. In 1750, approximately 700 million people consumed about 38 billion joules per person, resulting in a total consumption of around 27 billion billion joules worldwide. Distributed among 8 billion people (as of 2030), this amount would allow each person about 3.4 billion joules of energy. Although this would not support many lives of luxury, it is still several times more than the one billion joules needed to sustain the poorest of the world's population today (section 6.2). If humankind had to choose between this relatively impoverished state and the imminent extinction threatened by continued energy growth, bare subsistence would seem the better choice.

Needless to say, merely pointing out figures like these will not have much influence on the amount of energy actually consumed by the world economy in the year 2030. The point of these figures is to show that humanity could probably get along reasonably well on only a fraction of the total amount of energy we consume today. In terms of consumer dollars, this means that the world's gross economic product could (in theory) be cut back considerably without dire effect on most of the world's population for decades to come.

What these figures show more specifically is that the argument with which this section began is basically wrong-headed. The fact that world population continues to expand does not constitute a justification for continued growth in economic production. Given that economic growth requires increasing energy consumption, an expanding population argues for reduced per capita production instead. Our present ecological

predicament is sufficiently dire that some degree of economic retrenchment would be called for even if world population held constant at the present level.

11.3 An argument proposing growth as a means of reducing population

Another argument involving population, but with a different thrust, is suggested by the previously noted fact that population is increasing more rapidly in developing countries. In the form we shall consider, the argument is based on two assumptions. One is the assumption that these differences in population growth rates are due primarily to differences in affluence.² A supposed consequence is that population will grow more slowly in developing countries as their per capita GDP increases. Second is the assumption that an overall reduction in world population would be an effective means of mitigating humanity's adverse effect upon the environment. This, of course, is the approach advocated in Paul Erlich's high-profile book *The Population Bomb*.³ On the basis of these premises, the argument concludes that economic growth should be encouraged as a means of reducing the number of people the biosphere overall has to support.

One problem with this argument is that its initial premise is oversimplified at best. While relative poverty may be one factor influencing population growth in developing countries, there surely are other factors as well. Among other factors often suggested are a need for larger labor forces in underdeveloped countries, lack of educational opportunities for women in such countries, lack of occupations other than "homemaker" open to such women, lack of access by such women to information about family planning, and social practices that subjugate lower-class women by keeping them preoccupied with child rearing.

Reservations are also in order regarding the second premise. It is of course clear that population level is one factor influencing the amount of degraded energy the human

race inflicts upon the biosphere. Inasmuch as total human energy consumption equals per capita energy consumption multiplied by total world population, a cutback in population obviously would result in reduced energy consumption *if* per capita consumption itself did not increase. The problem here is that per capita consumption has been increasing dramatically during recent centuries (chapter 6) and probably would continue to increase even if world population were reduced to a lower level. We must bear in mind that the ecological degradation we are dealing with is a consequence of the amounts of entropy produced by human activity at large rather than the number of people producing that entropy.⁴

A further shortcoming of the argument is its underlying supposition that population level can be controlled by deliberate intervention, particularly of an economic nature. Prior to the last century or two, world population was held in check largely by pestilence, famine, and high rates of infant mortality. The main factor behind dramatic increases in population during recent times is a disengagement of these natural controls by technological developments in medicine and agriculture. Human ingenuity was a major source of our current high population levels in the first place, and now we find ourselves proposing further bursts of ingenuity in search for an economic remedy.

Attempts to regulate population inevitably are problematic, regardless of the techniques employed. One gray area has to do with ethics, inasmuch as many people find the most directly effective techniques (infanticide, abortion, even contraception) morally unacceptable. Given the conclusions of Chapter 7, similar misgivings might be raised about more indirect techniques featuring economic growth. Another issue is the extent to which such techniques are really effective.⁵ Other ramifications of the so-called “population bomb” aside, any lasting solution to our environmental predicament is more likely to rely on curtailed energy use than upon humanly contrived techniques of population control.

Given the problematic character of its premises, the argument that economic growth is needed as a means of population control seems dubious at best.

11.4 An argument based on disparities in wealth among nations

At the beginning of the present century, there were about 20 countries producing less than one thousand dollars a year per person, compared with over 27 thousand dollars for the 20 most prosperous nations (*CIA World Factbook*, 2001). This means that richer countries had about 27 times more wealth to support their individual citizens than did poorer countries in underdeveloped areas. Apart from tiny Luxembourg with \$36,400 per capita, the world's wealthiest country in 2000 was the U.S. with \$36,200. The average U.S. citizen enjoys amenities stemming from per capita income approximately 24 times greater than those of nearly 50 less prosperous countries.

In the view of many mainstream economists, the primary reason some countries are more affluent than others is that the economies of wealthy countries have been able to grow more efficiently over longer periods of time. The way to bring underdeveloped countries up to speed, accordingly, is to provide them with the same advantages that have done the job for their more affluent neighbors. These advantages include up-to-date technology (especially in agriculture), abundant energy (mainly fossil fuels), and the financial wherewithal to acquire these and other resources when needed. Technology and energy are available in the open market, and the money to acquire them can be borrowed from organizations like the World Bank and the International Monetary Fund (underwritten by more affluent countries).

When a laggard economy has been jump-started in this fashion, the argument continues, it will enter a period of economic growth. In the process, it will generate enough income to pay off its debts and to raise its country's inhabitants to a higher standard of living. If all goes well, the eventual result is that the country will work itself

into the ranks of developed nations. Countries like Zambia, for instance, with per capita GNP in 2000 of less than \$900, would no longer count as underdeveloped if their productive output began to approach the \$25,000 characteristic of Austria and Japan.

Here, in outline, is another familiar argument for economic growth. As poorer countries undergo development, their growth in income will remove the inequities they presently suffer in comparison with more prosperous countries. Economic growth thus serves as an instrument for equity, earning a country effective membership in the society of developed nations.

This argument encounters difficulties on several fronts. One obvious problem is that it justifies economic growth in poorer countries at best. Since the inequities in question are due to the wealth of some countries no less than to the poverty of others, an argument much like this could also be marshaled in behalf of curtailed growth in wealthier countries. Even if it were successful in other respects, the argument would do nothing to justify continued economic expansion on the part of already developed nations.

Another problem is that the argument overlooks the close correlation between economic production and energy consumption stressed elsewhere in this study (e.g., sections 7.2 and 11.2). Any process of development leading to parity in production of wealth would lead toward parity in energy consumption as well. And parity in energy consumption at levels current in wealthier countries would be catastrophic for the biosphere at large.

The extent of this problem can be illustrated by some statistics provided by energy scholar Vaclar Smil which, although not entirely up to date, are indicative of a presumably continuing pattern.⁶ According to Smil, whereas rich countries contain only about one-quarter of the world's population, they account for about four-fifths of its total energy consumption. If consumption in underdeveloped countries were raised to the

same level (i.e., the lower three quarter-sections each raised from one-fifteenth to four-fifths of the present level), energy use worldwide would more than triple ($\frac{4}{5}$ ths + 3 x $\frac{4}{5}$ ths = $\frac{16}{5}$ ths for a given year). Since energy currently being consumed by industrially developed countries already is producing more entropy than the biosphere can handle, the prospect of this entropy load being tripled over the next several decades cannot be viewed as a desirable goal.

Yet another major shortcoming of the argument is that the strategy behind it usually requires poor countries to borrow money for the capital improvements that are supposed to raise their standards of living. To the misfortune of millions of Third World people, these loans often have the opposite effect instead. Not only have many projects undertaken with borrowed money had socially disruptive consequences (e.g., the Aswan dam in Egypt), but time after time the poor recipients have been unable to meet the interest payments on their debts (let alone repay the principle). It has been estimated that by the mid-1980s Third World countries had run up a total debt of about one trillion dollars, interest payments on which have been taking up increasing shares of the earnings those loans enabled. All too often, the result has been lower standards of living in these countries than prevailed before the debt was incurred. After successive loans from private western banks and the International Monetary Fund in the 1980s, for instance, real wages in Zaire were only 10% of their level in 1960 and 80% of its population was in abject poverty.⁷

The equity problem is compounded by the fact that the main beneficiaries of these loan programs often turn out to be the First World lending institutions that provide the financing, along with the private corporations supplying the goods and services the money is used to purchase.⁸ The practice of rich countries providing loans that their poor recipients cannot repay is uncomfortably similar to that of financial institutions urging

credit cards on people with marginal incomes: the primary beneficiaries are the institutions providing the credit.

11.5 Arguments relating economic growth and quality of life

A favorite argument among advocates of economic growth recommends growth as an avenue to social well-being. Commonly cited benefits of economic growth include longer and healthier lives, wider choices of lifestyles, more leisure time, more jobs at better wages, and more money available for health care and education. A recent book by a prominent academic economist even advocates economic growth as a basis for moral improvement.⁹

In one way or another, benefits like these are thought to be linked with a society's economic prosperity. Thus it seems natural to rely on parameters like per capita GDP as measures of a social group's standard of living.¹⁰ Regardless of how measured, the mainstream view is that quality of life increases with per capita GDP. This correlation has served as a powerful argument among the faithful for economic growth.

A dissonant note over recent years has been a spate of news accounts about how economic growth has brought increasingly disproportionate amounts of wealth to sectors of society that are already prosperous.¹¹ This raises questions of equity in personal income which we shall have occasion to consider in a moment. Our present concern is with how the growth extolled by mainstream economists affects society at large, including its less affluent members.

One often noted by-product of economic growth is the creation of new jobs. In public discussions of economic policy, the availability of ample job opportunities is usually assumed to be a good thing. Promise of new jobs is a common ploy of political candidates, and loss of jobs is usually a hazard for political incumbents. The perceived

association of economic growth with the creation of jobs thus appears to support the conclusion that growth itself should be encouraged.

Effective as an argument like this might be in a political context, however, the premise linking job opportunities to economic growth is more problematic than at first might appear. The problem is that creating the conditions of growth on the part of large corporations often leads to a cutback of existing jobs instead. In parlance of the 1990s, this effect is known as “downsizing.”

The overall dynamics of this effect are roughly as follows. Economic growth is tantamount to increased production. In modern industrialized economies, increased production typically entails increased use of automation. Inasmuch as automation is a way of doing things without people, increased automation leads to decreased use of human labor. The upshot is that economic growth is often accompanied by loss of employment opportunities.

There of course is no ironclad rule that this downsizing effect will invariably occur. Under certain circumstances, it might turn out that the number of jobs added by economic expansion exceeds the number lost to automation. This seems to be typical of industrialized economies during wartime, when an urgent need for war materials overrides considerations of corporate efficiency. It may also apply in cases of a massive shift from one type of technology to another, such as the recent transition from machine skills to data processing in most advanced economies. From a broad perspective, however, such circumstances probably count more often as exceptions than as illustrations of the rule. The high incidence of job loss in expanding economies effectively undercuts the argument that economic growth is desirable because of the jobs it creates.

One way in which economic growth might bring about genuine improvement in social well-being, nonetheless, is through the provision of social services such as health

care, education, public transportation, and recreational facilities. Such services bring benefits to rich and poor alike. Although improvement in social services typically requires increased government expenditures, the additional funds can sometimes be made available by a larger tax base without a significant increase in prevailing tax rates. Given that economic expansion generally goes hand in hand with an increase in taxable holdings and activities, this converts into another frequently heard argument for economic growth. In short, economic growth enables an expansion of social services, bringing benefits to all sectors of the society involved.

The problem with this argument is that it runs contrary to empirical data. As might be expected, social services in developed countries tend to be more extensive than in countries with relatively low per capita income.¹² Within the category of developed countries, however, there appears to be no distinct correlation between per capita GDP and expenditure on social services. In a recent tabulation (2001), the five countries ranking highest in per capita GDP (Luxembourg, the Netherlands, the U.S., Ireland, and Iceland, averaging 43,000 U.S. dollars) spent an average of 17.9% of their total GDP on social services. On the other hand, the five countries with highest percentage of GDP spent on social services (Denmark, Sweden, France, Germany, and Belgium, averaging 28.2%) had an average per capita GDP of \$23,600. In brief, the five countries with the highest per capita GDP spent about 57% less of their total GDP on social services than did those ranking highest in expenditure on social services, while the latter had per capita GDPs about 82% lower than those of the wealthier group.

While figures like these change from year to year, what these particular statistics indicate is that greater national wealth does not translate into larger expenditures on social services. Although increased national income enables enhanced social services in theory, in practice those additional resources flow in other directions. Although enhanced

services may provide a theoretical justification for economic growth, accordingly, the justification fails when confronted with actual data.

Another factor that throws doubt on the supposed link between economic performance and social well-being is the growing evidence that economic growth may tend to erode various social amenities that contribute significantly to overall quality of life. The article “Economic Growth” in the 1974 *Encyclopedia Britannica* (by J.L. Cornwell) mentions writers who at that date were already concerned with some of growth’s side-effects, such as traffic congestion, pollution, despoiled landscapes, and loss of leisure time. Recent work employing statistics from the United Nations Human Development Index has pinned down substantial social costs of economic growth in terms of crime rates, family breakdown, toxic chemicals, under-employment, and noise pollution.¹³ And the journal *Medical News Today* (November 24, 2006) reports a study of why people in leading economies appear increasingly less happy in spite of their increased affluence, with the summary conclusion that “what drives economic growth is not necessarily good for...mental health.”

Yet another relevant factor is the relative satisfaction people feel with their economic circumstances. To the extent that personal satisfaction depends on economic considerations in the first place, there is evidence that people judge their well-being in comparison with others rather than on an absolute basis.¹⁴ In practical terms, this means that individuals with a certain income (say \$10,000 per annum) in a society with a lower per capita income (say \$5,000) will tend to be more content than other people with the same income in a society with higher average income (say \$20,000). Once again, we find a disconnect between quality of life and per capita GDP in absolute terms. Here is one more reason why economic growth cannot be justified with reference to the social benefits that are supposed to follow in its train.

11.6 The so-called “trickle down” effect

The observation that people judge their economic well-being in relative terms ties in with the so-called “trickle down” principle that has figured in recent debates about U.S. economic policy. By way of justifying the very considerable gains in corporate profits and executive salaries during recent years of economic upturn,¹⁵ conservative politicians have argued that these earnings tend to percolate downwards through the economy in the form of higher wages benefiting people in lower income groups as well. This reasoning is deceptive. It suggests that workers benefit merely by bringing home higher wages, whereas what would really be beneficial is an increase in actual purchasing power instead.

To distinguish the two, let us consider the effects of inflation. If inflation results in both take-home pay and the price of goods increasing at the same rate, then take-home pay increases while purchasing power remains constant. Apart from other drawbacks of inflation, this causes no direct economic damage to the average wage-earner. As long as wages keep pace with inflation, the wage-earner is able to purchase the same amount of goods and services as before.

But the trickle-down process does not work like inflation. As a result of trickle-down, someone’s purchasing power can actually decrease simultaneously with an increase in wages. When this happens, the increase in wages occurs under conditions that are detrimental to the workers involved.

To illustrate how this can happen, we need a standard unit with reference to which purchasing power can be measured. Let us take as a unit the wherewithal to purchase an item which, lacking a better name, we will call a “widget” (something most people need and will purchase if they are able). A person who can buy just one of these items has a purchasing power of just one widget. To keep things simple, let the going price for widgets be set initially at \$1,000.

Now imagine two people with different incomes, each a multiple of this standard unit. Person A is an executive whose current annual salary is \$100,000, giving A a purchasing power of 100 widgets. Person B is a worker with an annual income of \$10,000, and thus a purchasing power of just 10 widgets. At first, A's purchasing power exceeds B's by a gap of 90 widgets. The difference in life-styles available to A and to B is the difference made by being able to afford this additional number of widgets.

Let us also imagine that the economy has been subject for several years to an annual inflation rate of 10%. The incomes of A and B have changed accordingly, along with the going price of widgets. After one year of inflation, A's income is \$110,000, B's is \$11,000, and the price of widgets has increased to \$1,100. A can still buy 100 widgets compared to B's 10, leaving the same gap in purchasing power as before. After four years, A earns \$146,410, B earns \$14,641, and the price of the unit commodity is \$1,464. At this point, A can still buy 90 more widgets than B. And so forth and so on. As long as incomes and commodity prices increase at the same rate, the relative purchasing powers of A and B hold constant.

To get the trickle-down process underway, let us now suppose that A's corporation continues to make good profits year after year (due to steady growth in the economy), and that A is awarded a 10 percent salary increase annually. As a "best case scenario," assume that enough money has percolated down to provide B an annual 10 percent increase as well. These figures are adjusted for inflation, as is the price of widgets itself. This means that widgets still cost an amount equivalent in value to \$1,000 during the initial year.

Under these circumstances, it can be seen that the purchasing power of A relative to B increases significantly each year. Whereas A could buy 90 more widgets than B initially, during the next year A can afford 110 compared with B's 11, a difference of 99 standard units. After four years, A can buy 146 widgets to B's 15, a difference of 131. If

the process continues for another five years, the difference in purchasing power between A and B will stand at over 200 standard units.

Not only does the gap in purchasing power between A and B widen year by year, but it widens more rapidly as the years continue. Even under the generous assumption that B received a 10 percent raise nine years in a row, by the end of that period the gap between them has more than doubled. In order to keep the gap in purchasing power between them constant, B would have to receive a 100% increase the first year, an additional 55% the second, and well over 10% increases for each year following (in comparison with A's steady rate of 10%). While A's income slightly more than doubles over the nine year period, B's income would have to increase more than twenty-fold to avoid falling further behind. There is not the remotest possibility that the trickle-down process would be that generous.

Conceived in terms of purchasing power, this is the way trickle-down works. This is the way the rich get richer in an expanding economy—at the inevitable expense of the poor getting poorer. Even when substantial amounts of wealth generated by a growing economy are passed on to people in lower income groups, these people usually suffer in relative purchasing power as a result of the process.

11.7 The management of growth in free-market economies

We have examined a number of arguments commonly used to *justify* economic growth and found them wanting. Failure of arguments purporting to justify growth, however, will not halt the continuing growth of free-market economies. Given the expectation of profit by which they are driven (to be examined in section 13.2), such economies are programmed to grow indefinitely. An essential part of this dynamic is the profit-seeking motivation of its main participants, symbolized by the famous metaphor of the “Invisible Hand” (section 10.3).

It is important to realize that, despite the sense of self-determination conveyed by its label, the free-market economy is subject to a considerable degree of deliberate control. In economic parlance, the free market is usually contrasted to managed economies (like those of recent communist states) where governments play a direct role in setting prices and allotting resources. Although this distinction is genuine, there is a sense in which free-market economies are managed as well. They are managed by various governmental and private entities that set the conditions under which the free market operates.

In the paradigmatically free-market U.S. economy, for example, Congress enacts laws controlling taxation and tariffs, and the Executive enforces (or neglects) those laws with an eye toward their economic effect. The Federal Reserve Board regulates commercial interest rates hoping to steer a middle course between inflation and recession. The Interstate Commerce Commission sets parameters for the conduct of interstate business; and so forth. Indirect as their effects might be, each of these governmental entities plays a substantial role in directing the nation's economic activity.

On the private front, the nation's stock exchanges provide channels through which investors monitor the financial performances of profit-making corporations, which they influence by buying and selling shares. Corporations themselves exercise influence by lobbying Congress and by funding political campaigns of candidates sympathetic to business interests. Not to be overlooked are the large numbers of mainstream economists hired to advise these interested parties and to provide assistance in their shaping of market activity.

Each in its own way, these groups all have an interest in maintaining a consistent pattern of economic growth. For corporations, growth means expanding markets and increasing profits. For investors and corporate executives, it means increased dividends and personal incomes. Another group with a stake in growth includes countless

participants in retirement plans, mutual funds, and individual savings arrangements, many of whom experience declining assets when the economy goes stagnant. As far as mainstream economists are concerned, continued growth represents a vindication of their particular theoretical commitments. To the extent that the interests of these highly influential groups prevail, the free-market economy will be abetted in its inherent tendency toward continued growth.

From an ecological perspective, of course, the problem with this whole dynamic is that the free-market economy generates wealth out of resources taken from its supporting environment. The more wealth produced by the economy, the more severe the resulting ecological damage. To show this was the burden of Chapters 5 through 7. The unfortunate fact of the matter is that what is good for the free-market economy is bad for the biosphere at large.

11.8 The inherent anomaly of continual growth

From an ecological perspective, to be sure, the very notion of an economy that must continue growing to remain healthy is an unprecedented anomaly. Consider the analogy between an economy and a biological organism. Like any living organism, an economy takes organic materials and minerals (negentropy) from its immediate environment, converts these into useful products, and discharges the inevitable wastes (entropy) back into the environment. It undergoes periods of early growth and maturation (“development”) during which there is an increase both in the resources it takes from the environment and in the wastes that result from its productive operations.

But at this point the comparison begins to falter. According to mainstream economics, an economy must continue to grow even after it reaches maturity (becomes “developed”) and faces the threat of failure if its growth is impeded. For a living organism to keep growing past maturity, on the other hand, would be an unmistakable

omen of failing health. When a healthy organism reaches maturity, it typically shifts its energies from growing larger to simply maintaining a stable state. An organism that keeps growing beyond maturity becomes obese, and enters a terminal period of deterioration and decay.

Unpalatable as it may seem, the best biological analogy for a continually growing economy may be that of a cancer tumor that grows at an ever-increasing rate.¹⁶ In its more malignant forms, cancer continues to grow either until it is removed or until it destroys the afflicted organism. An economy geared for growth, in the like fashion, faces two possible futures. Either it finds a way to root out its malignancy, or it ends up destroying the very environment on which it feeds.

Given the complicity of mainstream economics in this dire predicament, it seems imperative that we look elsewhere for economic guidance. The purpose of the next chapter is to canvass other approaches to economics that are not beholden to the dogma of continued growth.

Notes

1. In the standard economics textbook *Macroeconomics: Private Markets and Public Choice* (Addison Wesley Publishing Company, 1988) by R.H. Ekelund and R.D. Tollison, for instance, the authors claim that the “overall goal of macroeconomic policy is...to attain maximum economic growth in the present and future” (p. 147). For another instance, a respected online encyclopedia characterizes neoclassical (mainstream) economics as maintaining “theoretically that infinite growth is both possible and desirable” (http://en.wikipedia.org/wiki/Ecological_Economics).
2. According to a World Bank study reported by F.M. Lappe and R. Schurman (*The Missing Piece of the Population Puzzle*, Institute for Food and Development Policy, San

Francisco, 1988), in countries where income of the poor increases by one percent fertility rates drop by three percent.

3. Ballantine Books, New York, first published 1968.

4. The reason many of us tend to focus on population reduction in addressing environmental problems may be that we want to find a way out without sacrificing the personal benefits that helped generate these problems in the first place. It is convenient to assume (erroneously) that the problems can be solved without lowering our own living standards by curtailing the number of people who share in the benefits.

5. Consider the cases of China and India, countries in which policies of population control have been applied most stringently in recent decades. Despite their use of techniques such as abortion and infanticide

(http://www.gendercide.org/case_infanticide.html), population in these countries continues to grow (http://www.chinadaily.com.cn/china/2007-03/01/content_817231.htm), <<http://en.wikipedia.org/wiki/india#Demographics>>. Not coincidentally, these countries recently have joined the ranks of the world's heaviest industrial polluters.

6. Vaclav Smil, *Energetics*, p. 201.

7. Data in this paragraph come from Clive Ponting's *A Green History of the World* (Penguin Books, 1993; first published 1991 by Sinclair-Stevenson Limited), pp. 342-345.

In the case of Zaire, corruption on the part of state leaders was a major part of the problem.

8. According to Ponting, *op. cit.*, p. 341, for instance, 3/4ths of Britain's bilateral aid in the 1980s was tied to the purchase of British goods, and another 14% was used to subsidize prices for British firms vying for Third World contracts.

9. Benjamin M. Friedman, *The Moral Consequences of Economic Growth* (Knopf, New York, 2005). The morality Friedman is primarily concerned with focuses on social

attitudes and political institutions, such as tolerance of diversity, social mobility, and dedication to democracy. Friedman is a chaired professor of economics at Harvard University.

10. Economists have been frank in pointing out that there are qualitative dimensions of human life that elude numerical measurement, and from time to time have proposed alternative modes of assessment. One alternative has been to distinguish between standard of living (measured economically) and quality of life, measuring the latter in terms of health or of life-style choices (<http://www.cdc.gov/hrqol/methods.htm>). Another has been to measure well-being by what is called a “Human Development Index,” covering matters of life expectancy and education along with economic purchasing power (http://en.wikipedia.org/Human_Development_Index).

11. This disproportionality has been evident in rich and poor countries alike (Indonesia, Thailand, Chile, Argentina, etc.). In the case of the U.S. specifically, a recent report based on data from the Economic Policy Institute issued the following summary statement: “GDP is up, but virtually all the growth has gone into corporate profits and the incomes of the highest economic brackets” (http://www.fair.org/index.php?page=2854&printer_friendly=1).

12. Trends and data cited in this paragraph come from

<<http://www.sciam.com/article.cfm?articleID=000AF3D5-6D59-152E-A9F18314B7F0000>> and

<http://en.wikipedia.org/wiki/Welfare_state#The_welfare_state_and_social_expenditure

>. See also Thomas M. Power, *The Economic Value of the Quality of Life* (Westview Press, Boulder, Colorado, 1980).

13. Reported in the *Gordon Institute of Business Science Review*, Volume 64, April 2006.

14. According to Michael Mandel, chief economist for *Business Week*, in his review of B.M. Friedman's *The Moral Consequences of Economic Growth*

(http://www.businessweek.com/magazine/content/05_45/b3958122.htm).

15. As cited in the Philadelphia Inquirer, Nov. 27, 2005, Business Week reported a rise in the U.S. ratio of CEO to average worker pay from 42:1 in 1980 to 531:1 in 2000.

Another source indicates a downturn in the trend, from 548:1 in 2000 to 465:1 in 2005

(<http://life.ducttapemarketing.com/2007/08/income-disparit.html>).

16. As Edward Abbey aptly remarked in *A Voice Crying in the Wilderness*: "Growth for the sake of growth is the ideology of the cancer cell,"

(<http://www.ups.gov/rivers/quotations.html>).